

ABSTRACT

Topic: "Information Technology for Real-Time Human Motion Tracking and Body Boundary Detection in Video Sequences"

Graduate work: 79 c., 30 figures, 21 tables, 1 application, 15 sources.

Relevance:

The definition of moving objects is an important task of computer vision.

Computer vision involves obtaining a digital image, processing it, analyzing images using statistical methods and models that built using physics, geometry, statistics methods and statistical theory of statistics.

Increasing number of powerful computers, the availability of high-quality cameras at a low cost,

and the increased need for automated video analysis has led to great interest in tracking algorithms.

Relationship of work with scientific programs, plans, themes. The work was carried out at the computer-aided management and data processing systems of the National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute» within the topic «Information Technology for Real-Time Human Motion Tracking and Body Boundary Detection in Video Sequences» (№ DR 0117U0009100).

The purpose of the study is to improve the accuracy of the human contour selection in the video sequence by optimizing the silhouette tracking algorithm by selecting the contour of the object model.

To achieve the goal, you must accomplish the following tasks:

- review the existing methods and means of tracking objects;
- carry out a comparative analysis of existing methods and models;
- determine the method of separating the body boundaries;

- develop a prototype of the virtual layer overlay on the human body in real time;
- perform the analysis of the obtained results.

The object of the study is the process of analyzing the image on the video sequence.

The subject of the study is the tracking of human movements and the allocation of body boundaries to video sequences in real time.

The method of research on the methods of detecting and tracking objects in the video sequence.

Novelty of work:

- developed a method for the process of isolating the contour from the silhouette of the monitored object, its modification and the subsequent overlay of the virtual layer on the human body.

Publications in the scientific journal "Computer-Integrated Technologies" the articles "The system of tracking, recording and visualization of human movements in space" and "Detection of human movements in video sequences in real time" were published.

COMPUTER VISION, VIDEO SEQUENCE, METHODS OF RECOGNITION OF OBJECTS, METHODS OF OBSERVING, METHOD OF DETERMINING THE BODIES OF THE BODY UNDER SILUTE, VIRTUAL LAYER, FUZZY NEAREST NEIGHBORHOOD CLASSIFICATOR